

HIGH CURRENT NPN SILICON TRANSISTOR

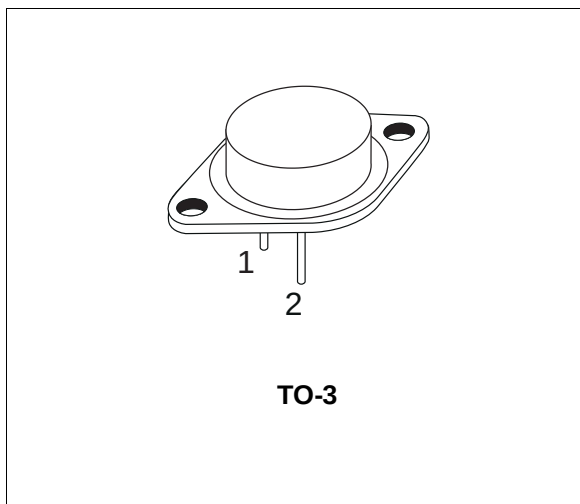
■ SGS-THOMSON PREFERRED SALESTYPE

APPLICATIONS

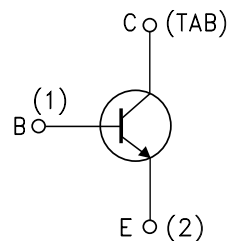
LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

DESCRIPTION

The BDY90 is a silicon epitaxial planar NPN power transistors in Jedec TO-3 metal case. They are intended for use in switching and linear applications in military and industrial equipment.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

		Value	
V_{CBO}	Collector-base Voltage ($I_E = 0$)	120	V
V_{CEV}	Collector-emitter Voltage ($V_{BE} = -1.5V$)	120	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	100	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	6	V
I_C	Collector Current	10	A
I_{CM}	Collector Peak Current (repetitive)	15	A
I_B	Base Current	2	A
P_{tot}	Total Dissipation at $T_c \leq 25^\circ C$	60	W
T_{stg}	Storage Temperature	-65 to 175	$^\circ C$
T_j	Max. Operating Junction Temperature	175	$^\circ C$

THERMAL DATA

R _{thj-case}	Thermal Resistance Junction-case	Max	2.5	°C/W
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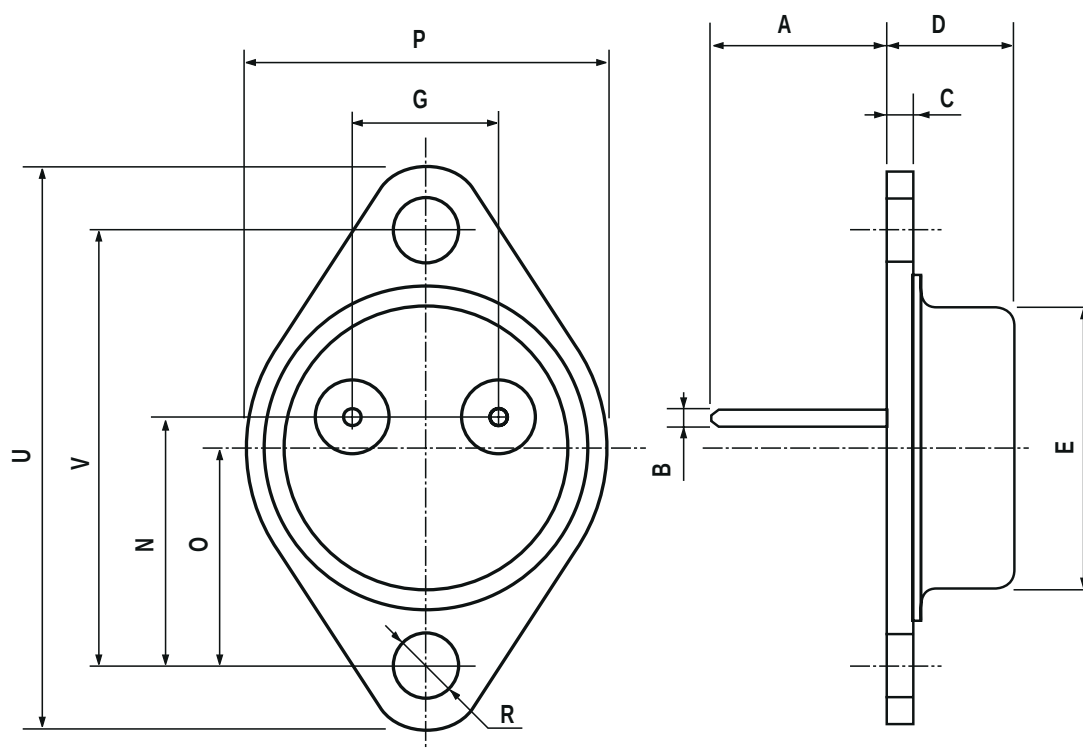
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I _{CBO}	Collector Cut-off Current (I _E = 0)	V _{CE} = V _{CBO}			1	mA
I _{CEV}	Collector Cut-off Current (V _{BE} = -1.5V)	V _{CE} = V _{CEV} T _{case} = 150 °C V _{CE} = V _{CEV}			1 3	mA mA
I _{EBO}	Emitter Cut-off Current (I _C = 0)	V _{EB} = 6 V			1	mA
V _{CEO(sus)} *	Collector-Emitter Sustaining Voltage (I _B = 0)	I _C = 100 mA	100			V
V _{CE(sat)} *	Collector-emitter Saturation Voltage	I _C = 5 A I _C = 10 A	I _B = 0.5 A I _B = 1 A		0.5 1.5	V V
V _{BE(sat)} *	Base-emitter Saturation Voltage	I _C = 5 A I _C = 10 A	I _B = 0.5 A I _B = 1 A		1.2 1.5	V V
h _{FE} *	DC Current Gain	I _C = 1 A I _C = 5 A I _C = 10 A	V _{CE} = 2 V V _{CE} = 5 V V _{CE} = 5 V	30 30 20	120	
f _t	Transition-Frequency	I _C = 0.5 A f = 5 MHz	V _{CE} = 5 V	70		MHz
t _{on}	Turn-on Time	I _C = 5 A V _{CC} = 30 V	I _{B1} = 0.5 A		0.35	μs
t _s	Storage Time	I _C = 5 A V _{CC} = 30 V	I _{B1} = -I _{B2} = 0.5 A		1.3	μs
t _f	Fall Time				0.2	μs

* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

TO-3 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.00		13.10	0.433		0.516
B	0.97		1.15	0.038		0.045
C	1.50		1.65	0.059		0.065
D	8.32		8.92	0.327		0.351
E	19.00		20.00	0.748		0.787
G	10.70		11.10	0.421		0.437
N	16.50		17.20	0.649		0.677
P	25.00		26.00	0.984		1.023
R	4.00		4.09	0.157		0.161
U	38.50		39.30	1.515		1.547
V	30.00		30.30	1.187		1.193



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